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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,020

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Iakovos Sigalas

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EXAMINER

FERGUSON, LAWRENCE D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

06/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,020	Applicant(s) SIGALAS ET AL.	
	Examiner LAWRENCE D. FERGUSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/8/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references disclosed within the information disclosure statement (IDS) submitted on December 8, 2005, has been considered and initialed by the Examiner.

Claim Rejections – 35 USC 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-2 and 12-18, the phrase, “ultra-hard material” is indefinite. It is unclear what makes the core material ultra hard, and what degree is considered ultra hard.

In claim 1, the phrase, “or the components for making an ultra-hard material, dispersed in a matrix, the matrix comprising the components for making an ultra-hard material of a grade different to that of the cores, and a suitable binder” is indefinite.

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It is unclear where both the plurality of cores of ultra-hard materials and the components for making an ultra-hard material are dispersed in a matrix and a suitable binder or if only the components for making an ultra-hard material is dispersed in a matrix and a suitable binder.

In claim 8, the phrase, "same type of ultra-hard material" is indefinite. Type is a relative term and it is unclear where the type of material is ultra-hard or not.

In claim 11, the phrase, "PcBN type material" is indefinite. It is unclear whether the core is a PcBN material or not.

In claim 12, the phrase, "substantially different from each other" is indefinite. It is unclear whether the materials are different or not. The term "substantially" is not defined by the claim and the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. While, as a general proposition, broadening modifiers are standard tools in claim drafting in order to avoid reliance on the doctrine of equivalents in infringement actions, when the scope of the claim is unclear a rejection under 35 U.S.C. 112, second paragraph is proper. See *In re Wiggins*, 488 F. 2d 538, 541, 179 USPQ 421, 423 (CCPA 1973). Additionally, a substantial portion was held to be indefinite because the specification lacked some standard for measuring the degree intended and, therefore, properly rejected as indefinite under 35 U.S.C. 112, second paragraph. *Ex parte Oetiker*, 23 USPQ2d 1641 (Bd. Pat. App. & Inter. 1992).

Claim Rejections – 35 USC § 102(b)

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7, 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Fang et al. (U.S. 6,454,027).

Fang discloses a composite material comprising a plurality of granules (cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron

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nitride (PcBN) distributed within a matrix and binder (column 2, line 66 through column 3, line 12, 21; column 4, lines 42-43) where the PCD and PcBN materials are ultra-hard materials, as in claims 1-3, 11-13 and 15-17.

Concerning claims 4-5 and 10, the cores are formed of PCD and PcBN and the matrix is construed as being formed of PCD and PcBN material, as the matrix comprises PCD and PcBN material.

Concerning claims 6-7 and 19-20, the PCD granules have grain size in the range of from 1 to 50 microns (column 5, lines 40-43).

Concerning claim 9, the core and matrix are made from PCD material, where the core PCD material comprises a binder material such as Co, Ni, Fe (column 4, lines 42-45) where the matrix material comprises binder material further consisting of C, B, Cr, Si and Mn (column 3, lines 21-26).

Concerning claims 14 and 18, the PCD composite material is coated on a substrate (column 10, lines 37-47) where the PCD material is sintered at a high temperature and high pressure (column 9, lines 59-67).

Claim Rejections – 35 USC § 103(a)

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fang et al. (U.S. 6,454,027).

Fang is relied upon for claim 1, as above. Fang does not explicitly disclose the PCD and PcBN materials differ in particle size. It would have been obvious to one of ordinary skill in the art for the PCD and PcBN materials to differ in particle size because Fang discloses a composite material comprising a plurality of granules (cores) formed from a mixture of polycrystalline diamond (PCD) and polycrystalline cubic boron nitride (PcBN) (column 2, line 66 through column 3, line 12, 21) where Figure 1 shows the grain size (12) of the mixed material vary in size. The reference further discloses diamond particles can be granulated into a desired size (column 6, lines 33-34). Regarding the differing particle size of the materials, a recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/L. Ferguson/
Patent Examiner
AU 1794

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794